
CHAPTER 3

PROJECT SPECIFICATIONS

3-1. PURPOSE. This chapter provides requirements for preparing project specifications for structures and facilities designed by USAEDH or by outside agencies under contract to USAEDH. The outside agencies may be A-E's, contractors, or other Government agencies. These specifications will be prepared from Corps of Engineer guide specifications (CEGS), where applicable, and from specifications prepared in the CEGS format when CE guide specifications do not apply.

3-2. APPLICABILITY. Project specifications (hereafter referred to as specifications) will be prepared in a manner that ensures the project is constructed in accordance with approved and established engineering standards as well as established design requirements. The guidance given in this chapter applies to all personnel involved in the design and construction of complex facilities under the direction of the US Army Corps of Engineers, Huntsville Division.

3-3. REFERENCE DOCUMENTS. Specifications will comply with the requirements in the following documents:

- a. ER 415-1-10, Contractor Submittal Procedures
- b. ER 1110-345-100, Design Policy for Military Construction
- c. ER 1110-345-720, Construction Specifications

3-4. GENERAL INSTRUCTIONS. The specifications, when combined with contract drawings, will provide sufficient detail to attract fair and competitive bids or to allow USAEDH to conduct equitable negotiations. Unless written permission has been received from the project manager prior to the start of the job, only current CEGS will be used in preparing specifications for individual jobs prepared by USAEDH or by outside agencies under contract to USAEDH. Where approved standard facility specifications are relevant and available (see paragraph c below), permission to use them may be obtained in writing from the project manager. The procedures outlined in this chapter will be followed in preparing specifications.

a. Guide Specifications. At the beginning of the project, an updated index listing the number, title, and issuance date of CEGS will be provided by USAEDH, upon request, to those preparing the specifications. Specifications will be prepared from CEGS for each individual job by design choices, modifications, and alterations. It is the responsibility of the preparer to incorporate notices (changes) into the job as they are incorporated into the guide specifications. Each quarter, compact disks are prepared that contain the notices already incorporated into the individual CEGS. The latest notice is delineated by automation tokens on the data base. Previous notices are incorporated prior to insertion of the new notice. It is the responsibility of the designer to determine applicability and incorporate these notices into ongoing projects.

b. Non-CEGS Sections. When a specification section is required that is not listed in an index of standard specifications available from USAEDH, a complete section of this

specification will be prepared in accordance with CEGS format and content and submitted by the preparer. These non-Corps of Engineers guide specifications may be construction, process, performance, equipment, or other types of specifications required to complete the specifications package.

c. Standard Design Packages. The Corps of Engineers has developed standard design packages, including specifications, for use on repetitive projects. These specifications, when approved for use, will be reviewed and developed as required to meet the design requirements of the current project and will have all references to standards updated to current levels. This updating of codes and standards will be reflected in similar updates to the design drawings.

d. Site Adapted Packages. Some projects contain elements that are so similar in design to previously completed project elements that USAEDH will release the applicable previously completed project element to be used, i.e., "site adapted" to the current project. In this situation, the specifications will be reviewed and developed to meet the design requirements of the current project and will have all references to codes and standards updated to current levels with corresponding updates to the drawings.

3-5. COORDINATION BETWEEN DESIGN DISCIPLINES. Prior to the actual start of the specification preparation, the specification preparers should resolve probable conflicts before they arise. Sample conflicts include but are not limited to:

a. Plumbing, gas piping systems, and interior electrical work normally include utilities within the building to a point 1.5 meters (5 feet) outside the building or to electrical service weatherheads. The outside utilities sections should include connection to the building utilities at the 1.5 meter line (5-foot).

b. Ceiling types for buildings are many and varied, and the resultant choice of lights, boxes, wiring, and supports are also many and varied.

c. Load-bearing or structural walls have certain design tolerances which can be adversely affected by penetrations, whether for conduit or windows.

d. Electric motors specified at 440 volts may have to operate off 480 volt supplies.

3-6. OUTLINE (CONCEPT) SPECIFICATIONS. The preparer will review the Index of Guide Specifications provided by USAEDH and identify the CEGS that are applicable to the design under contract. From this identification, an outline of the CEGS and non-CEGS required by the project will be prepared. Outline specifications will be submitted with the concept design submittal. Applicable CEGS and non-CEGS will be listed in columns with headings for Guide No., Title, and Description (which details salient features of construction along with delineations of deviations from standard criteria). Refer to appendix D for an example of a typical outline specification.

3-7. INTERMEDIATE AND FINAL DESIGN SPECIFICATIONS

a. Preparation of Specifications. Upon approval of the outline specifications by USAEDH, the preparer will acquire the applicable CEGS, begin to process them, and start preparation of the non-CEGS specifications for the project. Current specifications complete

with current revisions (specification revisions) and incorporated notices (changes to an existing specification) are available on compact disk from the National Institute of Building Sciences (NIBS), Washington, D.C. 20005, Telephone No. 202- 289-7800. This disk is the data base for the SPECSINTACT System which is an auto-mated specification processing system used by USAEDH. This disk contains other Government agency specifications as well as CEGS. For projects involving small quantities of CEGS, the specifications may be obtained from USAEDH on 3-1/2" or 5-1/4" IBM compatible diskettes employing ASCII format. It is the responsibility of the preparer to ensure that all revisions and notices are incorporated into the current CEGS for the period ending with the acceptance of the final design specifications by USAEDH.

b. Inch-Pound/Metric Specifications. CEGS are currently available in either inch-pound or metric units. The data base software provides the means to select inch-pound or metric units depending on the project requirements.

c. Submittal of Specifications. Specifications, accompanied by drawings and design analyses, will be submitted by the preparer according to the schedule in the contract for review by USAEDH personnel.

(1) At the intermediate level, the project design should be taking shape and the draft specifications (CEGS and non-CEGS) will be submitted for review in marked-up form with discarded design choices visible in spite of markings (appendix D is an example for marking instructions). Specifications should be marked up to the level of the design completion and will accompany the drawings. Inserts will be neatly typed and inserted into the marked CEGS pages with accompanying locators for their placement. A draft copy of the bidding schedule will be submitted with the intermediate design.

(2) At the final design level, the project design should be complete with the specifications coordinated with the drawings. Applicable comments from the intermediate review will be incorporated. If an intermediate submittal is not required by the SOW, marked-up specifications, as described above, will be submitted in addition to the manuscript with the final design submittal. A final review will be conducted by USAEDH to determine that all previous review comments have been either incorporated or justifiably withdrawn; that the specifications have been coordinated with the drawings and the design analysis; and that the individual CEGS have the latest notices and revisions incorporated into them. The preparer will submit one typed manuscript copy and two reading copies (loose) of the specifications (see appendix E) along with IBM-compatible 3-1/2" or 5-1/4" diskettes in ASCII or SPECSINTACT pull-data format containing the typed manuscript information. The contents of the final design specification package will be as follows:

(a) Cover sheet with title of job, contract number, location, date, and name of A-E.

(b) Bidding schedule including descriptive items, units, and quantities (include listing of payment paragraphs in specifications). It will be developed from specifications and coordinated with the cost estimate.

(c) Table of contents for entire project, listing in order the section number and title along with the number of pages in each.

(d) Table of contents in front on each section, listing in order the paragraph number and title along with the number of pages in each.

(e) Specification Sections, Division 1

1 Contractor Quality Control

2 Submittal Descriptions and Submittal Procedures, including properly filled out ENG Form 4288's

3 Environmental Protection (as determined by USAEDH)

4 Other Division 1 specifications as required by USAEDH to complete the project specifications package

(f) Specification Sections, Division 2 through 16 as applicable.

(g) Lists of all Government-furnished, contractor-installed property with descriptions and cost.

(h) List of all proprietary items with location in specifications, cost, manufacturer's name, and justification.

(i) Work sequence including unusual schedule requirements such as equipment installation during construction, or work split between two contractors working on different jobs at same time.

(j) Construction duration in calendar days coordinated with list of major milestones.

3-8. AMENDMENTS

a. Amendments as Revisions to Specifications. Should revisions or corrections to the specifications or drawings be required between the date of issuance of the solicitation and the closing of the solicitation, an amendment will be required. Depending on the terms of the design contract, the specification preparer will be required to either prepare the amendment and make the necessary changes to the contract documents or provide technical assistance to USAEDH in the preparation of the amendment.

b. Scheduling of Amendment. The amendment will be prepared and submitted under a strict time schedule directed by USAEDH.

c. Preparation of Draft and Final Specification Amendment. Draft revisions to the specifications will be indicated by responsible designers marking changes in red on loose pages taken from an unbound set of the advertised solicitation. The final amendment will be prepared in accordance with the details given in appendix E, examples 1 through 5.

3-9. PROPRIETARY ITEMS. Where specific equipment or material are required by criteria or design conditions, the item is the product of a single manufacturer, and/or no substitutes will be acceptable, compliance with the requirements of ER 1110-345- 100 is

required. The designer will make the determination that use of the proprietary or "sole source" item is essential. In each case the following actions will be taken:

a. Justification. The preparer will submit a written request to use the proprietary item with complete detailed justification to USAEDH for approval prior to including the product in the design documents. Requests will be based on a fully justified determination that only that particular product will meet the essential requirements. Approvals will be granted for one-time test and evaluation.

b. Approval. If the justification is adequate, the Division Engineer will approve the request and prepare a letter to Headquarters, Department of the Army (HQDA), DAEN-MPG, stating all facts pertaining to the matter.

c. Requirements. After proprietary item use is approved, specify the item, and after the make and model number, add the words "No substitutes will be acceptable."

3-10. GOVERNMENT-FURNISHED PROPERTY (GFP). When Government-furnished, contractor-installed materials or equipment are involved, such GFP will be described on a separate list and provided along with the submittals outlined in paragraphs INTERMEDIATE AND FINAL DESIGN SPECIFICATIONS. Descriptions will include manufacturer make and model, weight, dimensions, quantity, cost, and other information required by the contractor to insure the value of the GFP.

3-11. REMOVAL OF EQUIPMENT OR MATERIALS

a. Materials Removed from Buildings. Materials to be removed will be identified on the drawings with the disposition and handling listed in the Demolition Specifications by category. The categories of removed materials are defined as:

(1) Reinstalled items are those which, after removal, will be reused, rein-serted, remounted, or otherwise built into the new work under the contract. (Such items will not be identified as "Government-furnished.")

(2) Salvaged items are those which, after removal, will be delivered to Government storage.

(3) Debris includes all removed materials that are not noted or specified for reinstallation or salvage.

b. Materials Removed During Site Preparation. Materials to be removed from the site will be so noted on the drawings. The disposition of such removed materials will also be noted on the drawings or stated clearly in the specifications.

3-12. COMMON SPECIFICATION ERRORS

a. Ambiguities in Specifications. Ambiguities should be avoided in the preparation of specifications. The expression "as directed by the Contracting Officer" should not be used if it is feasible to give specific instructions in the specifications. Preparers should contact the project manager to obtain specific information so that indefinite terms can be eliminated. For example, when material is to be salvaged and stored, the specifications

should state "to be stored in Building 210" or "in the Base Salvage Yard," rather than "as directed by the Contracting Officer." When it is impossible to determine ultimate disposition of excess excavated materials, broken concrete, etc., specifications should state that the haul will not exceed a stated number of miles. When necessary to demolish or move structures, the project manager should be contacted for disposition of material, equipment and/or the structure so that detailed instructions may be given in the specifications.

b. Miscoordination Between Specifications and Drawings. Requirements of specifications and drawings will be carefully coordinated and discrepancies eliminated. Specifications and drawings should dovetail informationally, not overlap or mismatch. Requirements between the various sections of specifications will be coordinated. The following examples of lack of coordination are typical and are given to show likely discrepancy locations:

(1) Drawings. Specifications state that items "will be as shown on the drawings." The drawings refer to the specifications.

(2) Paint. Mechanical section calls for pipe insulation in finished area to "be sized then given two coats of paint." The painting section states that "in finished areas, surfaces to be painted will include all exposed wood, plaster, pipe insulations, etc." and then gives details for finishing insulation which are different from those given in the mechanical section.

(3) Concrete. Utility section refers to section "CONCRETE" and the referenced section is entitled "CONCRETE FOR BUILDING CONSTRUCTION."

(4) Detail. Painting section states that no interior painting is required. Section on Sewage Treatment Plant has detailed specifications and a finish schedule for interior painting.

(5) Different Callout. The section covering corrugated siding states "color of all siding will be green." COLOR SCHEDULE specification section has finish schedule listing a different color of siding for individual buildings.

c. References

(1) References Made to Blank CEGS. References such as "will conform to CEGS-08201" are not valid references. The CEGS are for use in writing project specifications, not as reference documents. It should be noted that these are guides and are not project or standard specifications.

(2) References to Third Party. References to a third party will be avoided. The "Contractor" and the "Contracting Officer" are the only contracting parties in a contract; therefore, only "Contractor" and "Contracting Officer," and in certain instances, "Government" will be used throughout. Reference to work to be done "by others" should be made only when that work is not a part of the subject contract and will actually be done under another contract. Reference to third parties, such as "buyer," "supplier," "owner," "post engineer," "architect-engineer," "subcontractor," and "engineer" will not be used in the specifications.

(3) Section number and cross references to other paragraphs, pages or sections by number designation are improper. Reference to other sections will be made by section number and title in lieu of their respective numbers alone. References to paragraphs within in the section will be made by paragraph title alone.

d. Deviations. Deviations from the CEGS will be avoided where practicable. Essential deviations and documentation thereof will be in accordance with ER 1110-345-720. Documentation of deviations will be furnished with final submittal of specifications.

e. "Brand Name or Equal" Specifications. The use of brand name or equal specifications should be avoided, where possible. Where used, brand name or equal specifications must meet the requirements of FAR Sub-Part 10.004(b)(3), DFARS Sub-Part 210.004, and DFARS Sub-Part 252.210-7000, "Brand Name or Equal." Note that brand name or equal specifications should, among other requirements, include a complete common generic identification of the item, a list of all known acceptable name brand products, and all salient physical, functional, or other characteristics which are essential to the needs of the Government.

3-13. BIDDING SCHEDULE. The bidding schedule should be prepared concurrently with preparation of the specifications. It should reflect the cost estimate in delineation of funding sources, i.e., MCA, O&M, etc. Care should be taken to completely cover each payment item without overlapping other payment items. It should be made clear exactly what is and what is not to be paid for under each item. If a pay item description is quoted, the nomenclature should correspond exactly to that given in the bidding schedule. Additive or deductive bid items, as well as optional bid items, if used, should be clearly defined on the drawings and in the specifications so that only a brief description will be necessary on the bidding schedule.

3-14. PAYMENT PARAGRAPH. The preferred method of payment for all work under the contract will be lump sum on the bidding schedule. Payment paragraphs are not necessary for projects with only one lump sum bid item. Unit prices will be used where large quantities of work such as grading, paving, building outside utilities, or site preparation are involved; where quantities of work, such as excavation, cannot be estimated with sufficient confidence to permit a lump sum offer without a substantial contingency; where estimated quantities of work required may change significantly during construction; or where offerors would have to expend unusual effort to develop adequate estimates. Payment paragraphs are required at the front of each section covering work where payment will be broken out into separate bid items. When unit-price payment is used, a measurement paragraph is required to define the unit and the method of verifying quantities. Prior to final submittal, the bidding schedule sheet will be prepared to reflect the cost estimate and will be coordinated with the payment paragraphs to verify that each item is properly covered and that it is perfectly clear how and under which items the various costs are to be included.

3-15. SUBMITTALS. Most Division 2 through Division 16 submittals are listed in PART 1 GENERAL of the specifications, except for special requirements, tests, etc. Division 1 submittals are detailed where they occur. Each submittal will be listed as either for "Government Approval" or "For Information Only." Division 1 and Division 2 through Division 16 submittals will be listed on ENG Form 4288. The information required by the form for each entry will be entered in the correct forms. All Division 1 submittals may be listed on one form; Division 2 through Division 16 will have a separate form for each section. These forms

will have the project title and location as well as the Division and Section number entered into the proper spaces. All ENG Form 4288's will be accumulated sequentially and placed at the end of the Division 1, Section 01305, SUBMITTAL PROCEDURES. Each page will be numbered in sequence with the rest of this section. New submittal requirements should be limited to those required for quality control during construction and those required for operation, maintenance, repair, and warranty enforcement after construction.

3-16. FINAL REVIEW. The preparer will carefully review the specifications that he has prepared, and verify that the final specification drafts contain no inapplicable clauses, paragraphs, ambiguities, and that all review comments have been properly incorporated. All changes to the specifications through the time of the acceptance of the final design will be incorporated into the specifications with corresponding changes to the drawings where required.